

Name: _____
A2CC: Finding Equations of Polynomials

Date: _____

Do Now:

1. Given that -4 is a zero of $f(x) = x^3 + 3x^2 - 6x - 8$,
find: (a) the complete factorization of $f(x)$
(b) the complete solution set of $f(x)$
2. Given $f(x) = x^5 + 2x^3 - 24x$,
find: (a) the complete factorization of $f(x)$
(b) the complete solution set of $f(x)$
3. Find an equation for a cubic polynomial that has zeros of -2 , 1 and 3 .

Classwork

1. Determine the equation of a quadratic function whose roots are -3 and 4 and which passes through the point $(2, -50)$.
2. Create the equation of the cubic, in standard form, that has x -intercepts of -4 , 2 and 5 and passes through the point $(6, 20)$.
3. Create the equation of a cubic, in standard form, that has a double zero at -2 and another zero at 4 . The cubic has a y -intercept of 16 .
4. Create the equation of a quadratic polynomial, in standard form, that has zeros of -5 and 2 and which passes through the point $(3, -24)$.
5. Create the equation of a cubic, in standard form, that has x -intercepts given by the set $\{-3, 1, 7\}$ and which passes through the point $(-2, 54)$.
6. Create the equation of a cubic, in standard form, that has x -intercepts given by the set $\{-6, -3, 5\}$ and which passes through the point $(3, 36)$.
7. Find the cubic polynomial whose graph passes through the points $(2, 0)$ and $(4, 6)$ and is tangent to the x -axis at the origin.

8. Find the cubic polynomial whose y -intercept is 9 and whose x -intercepts are 1, 2, and -3 .
9. Find the 4th degree polynomial whose graph passes through $(0, 6)$ and is tangent to the x -axis at $(3, 0)$ and $(-2, 0)$.
10. Create the equation of a quadratic function, in standard form, that has one zero of -3 and a turning point at $(-1, -16)$. (Hint: use the symmetry of the parabola to help you.)